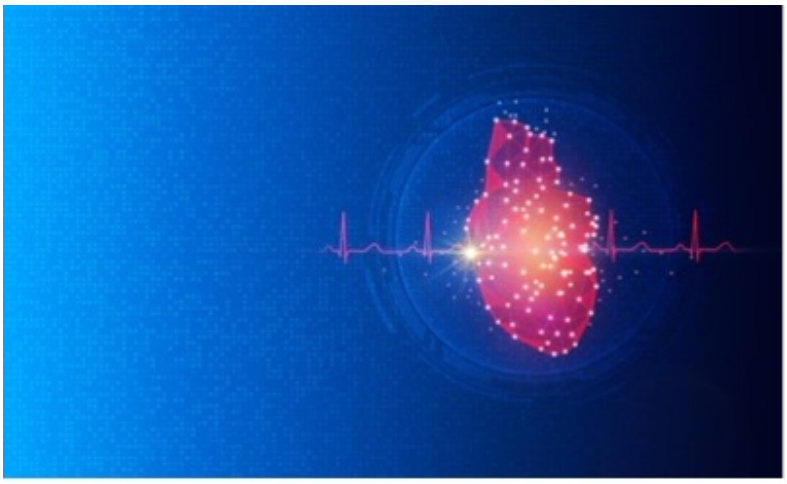
INNOVATION PARTNERSHIPS
UNIVERSITY OF MICHIGAN

A Catheter and Method for Cardiac Intracavitary Mapping and Navigation

Technology Number: 5848



Technology ID
5848

Category
Medical Devices

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OVERVIEW

Intracardiac mapping catheter for guiding cardiac arrhythmia treatments

- Non-contact mapping localizes fibrillation sources without needing stable arrhythmias
- Applies to treating atrial fibrillation, tachycardia, and guiding catheter ablation procedures.

BACKGROUND

Atrial fibrillation (AF) is a prevalent cardiac arrhythmia affecting over 7 million people in the US and the European Union. It is a chronic disorder that can progress to become permanent, significantly increasing the risk of stroke, congestive heart failure, and sudden cardiac death. Traditionally, anti-arrhythmic drugs have been used to manage AF, but they often prove ineffective and can cause harmful side effects. Catheter ablation procedures have emerged as a more promising treatment with high success rates, especially for paroxysmal AF. However, there is still an unmet demand for effective treatments for persistent and permanent AF. Historical approaches to intracardiac mapping require contact with the heart wall to measure electrical activity, a process that is time-consuming and dependent on a stable arrhythmia, highlighting the need for an improved, more efficient method.

INNOVATION

Researchers at the University of Michigan Center for Arrhythmia Research have developed an innovative non-contact intracardiac mapping catheter. This technology detects blood movement within a heart chamber and uses this information to localize the source of fibrillation in the heart wall. The catheter measures the electrical activity of the blood, which is then analyzed to pinpoint fibrillation drivers. This approach eliminates the need for direct contact with the heart wall, reducing the complexity and time required for mapping arrhythmias. The catheter was successfully tested in a simulated heart environment, proving its potential for accurate localization of fibrillation sources. Real-world applications include guiding catheter ablation procedures to treat atrial fibrillation, tachycardia, and other complex arrhythmias effectively, offering a significant improvement over current contact-based mapping techniques.